



AF/1746

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **HIROOKA, et al**

Group Art Unit: 1746

Serial No.: 09/337,278

Examiner: **Jiri Smetana**

Filed: **June 22, 1999**

P.T.O. Confirmation No.: 8796

FOR: **CLEANING AND HANDLING METHODS OF ELECTRONIC COMPONENT AND
CLEANING APPARATUS THEREOF**

REQUEST FOR RECONSIDERATION AFTER FINAL REJECTION

BOX AF

Commissioner for Patents
Washington, D.C. 20231

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MAY 23 2002



May 20, 2002

Sir:

TC 1700

In response to the Office Action dated **March 25, 2002**, applicants request favorable reconsideration of the above-identified application. Claims 1, 3, 5 and 7-19 are pending.

Claims 1 and 5 were rejected under 35 USC §103(a) as being unpatentable over Miyashita et al. in view of Kanno; claims 1 and 5 were rejected under 35 USC §103(a) as being unpatentable over Miyashita et al. and Kanno in view of Takehiko et al.; claims 3, 7 and 8 were rejected under 35 USC §103(a) as being unpatentable over Miyashita et al. and Kanno in view of Simmons et al.; claims 3, 7 and 8 were rejected under 35 USC §103(a) as being unpatentable over Miyashita, Kanno and Takehiko in view of Simmons et al.; claims 9 and 10 were rejected under 35 USC §103(a) as being unpatentable over Miyashita, Kanno and Simmons in view of Chung et al.; and claims 9 and 10 were rejected under 35 USC §103(a) as being unpatentable over Miyashita, Kanno, Simmons, Takehiko in view of Chung et al. Favorable reconsideration of these rejections is earnestly solicited.

Submitted herewith is a Declaration under 37 CFR §1.132 of Taisuke Hirooka, which is believed to establish the unexpected results associated with the claimed invention over the cited art. In particular, the declaration presents experiments which show an unexpected increase in the particle elimination rate percent when using cleaning water having a resistivity value of less than $5\text{M}\Omega$. As shown in the graph attached to the declaration, the elimination rate of the particles is extremely increased as the resistivity of the cleaning water becomes $5\text{M}\Omega$ or less.

The art cited by the Examiner, which discloses water having a resistivity value of $5\text{M}\Omega$ to $18\text{M}\Omega$ does not recognize the unexpected results associated with cleaning water when the resistivity is below $5\text{M}\Omega$. Accordingly, the primary combination of Miyashita et al. and Kanno fails to teach or suggest the unexpected results associated with the claimed invention.

With respect to Takehiko, the abstract thereof describes a method for cleaning a semiconductor wafer by using ultra-pure water in a final process of cleaning wherein solution whose resistivity value is adjusted to 0.1 to $3.0\text{M}\Omega$ is used by adding electrolyte. The teachings of Takehiko would not have motivated one of ordinary skill in the art to have modified the primary references as asserted by the Examiner. At most, the Examiner's position appears based upon an obvious to try standard.

In regard to Simmons, the Examiner argues that Simmons would have rendered it obvious to separate the sponge member from the object to be cleaned during cleaning since Simmons teaches cleaning contaminants. However, the portions highlighted by Examiner teach a method for cleaning contaminants from a brush when the pH level of the brush is raised. As such, the teachings of

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Simmons would not suggest the features of the sponge member being separated from said object to be cleaned during cleaning and said water is supplied also to said separated sponge member.

With respect to Chung et al., Chung et al. merely teaches that wafers containing a film of residual photoresist stripper are inserted in a vessel 23 filled with deionized water 24 which is pumped with carbon dioxide into a vessel to cause the water to overflow the vessel during the entire rinsing operation. As such, Chung et al. would not have motivated one of ordinary skill in the art to have modified the primary references as asserted by the Examiner.

For at least the foregoing reasons, the claimed invention distinguishes over the cited art and defines patentable subject matter. Favorable reconsideration is earnestly solicited.

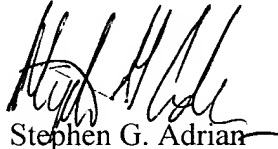
Should the Examiner deem that any further action by Applicants would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone Applicants' undersigned attorney.

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In the event this response is not timely filed, Applicants petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, WESTERMAN & HATTORI, LLP

A handwritten signature in black ink, appearing to read "Stephen G. Adrian", is written over a horizontal line.

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Attachments: Declaration under 37 CFR 1.132 with graph
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